

# Device Modeling Report

COMPONENTS:

DIODE/ SCHOTTKY RECTIFIER/PROFESSIONAL

PART NUMBER: 1N5819

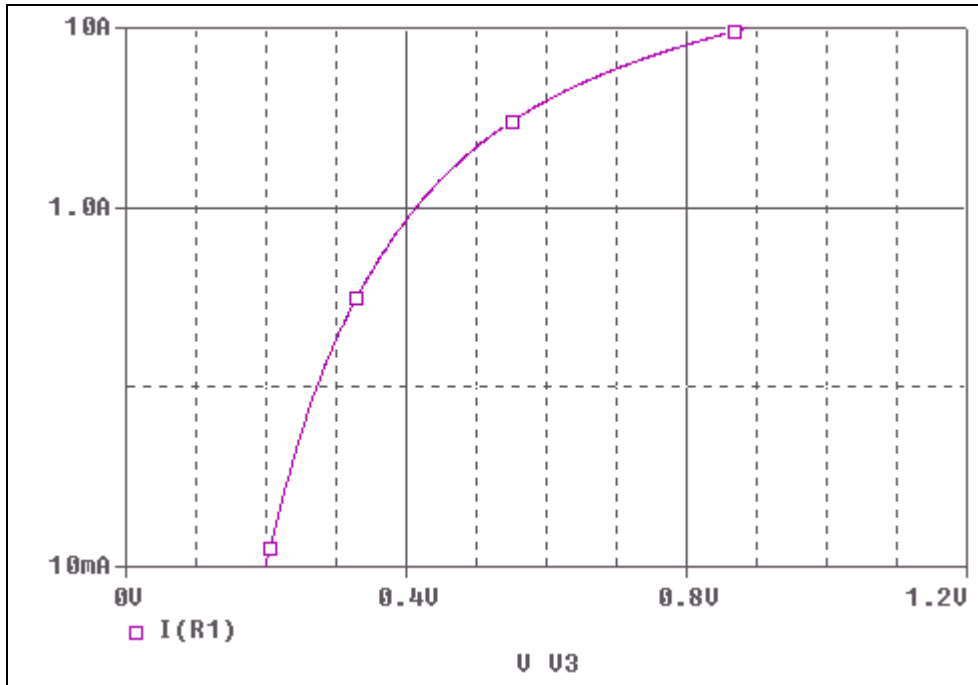
MANUFACTURER: ON SEMICONDUCTOR



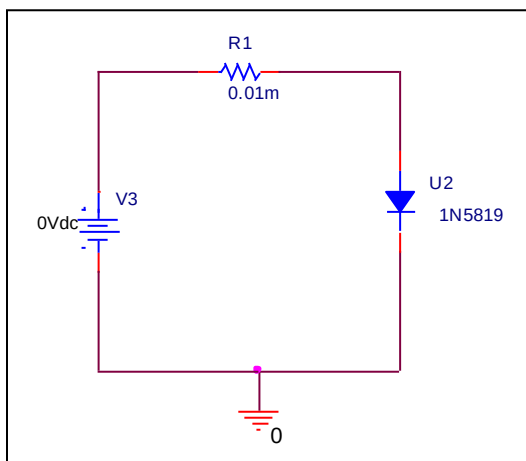
**Bee Technologies Inc.**

## Forward Current Characteristic

### Circuit Simulation Result

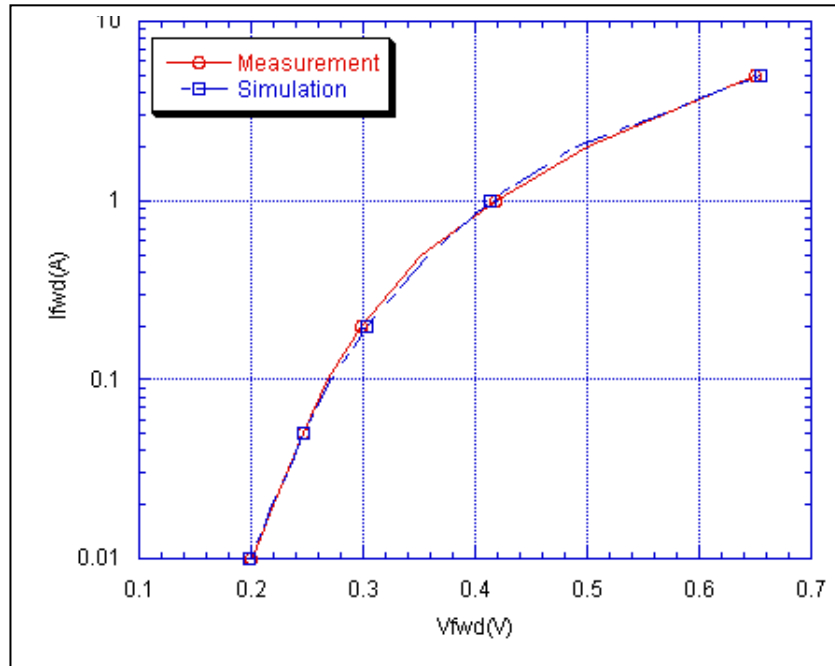


### Evaluation Circuit



## Comparison Graph

### Circuit Simulation Result

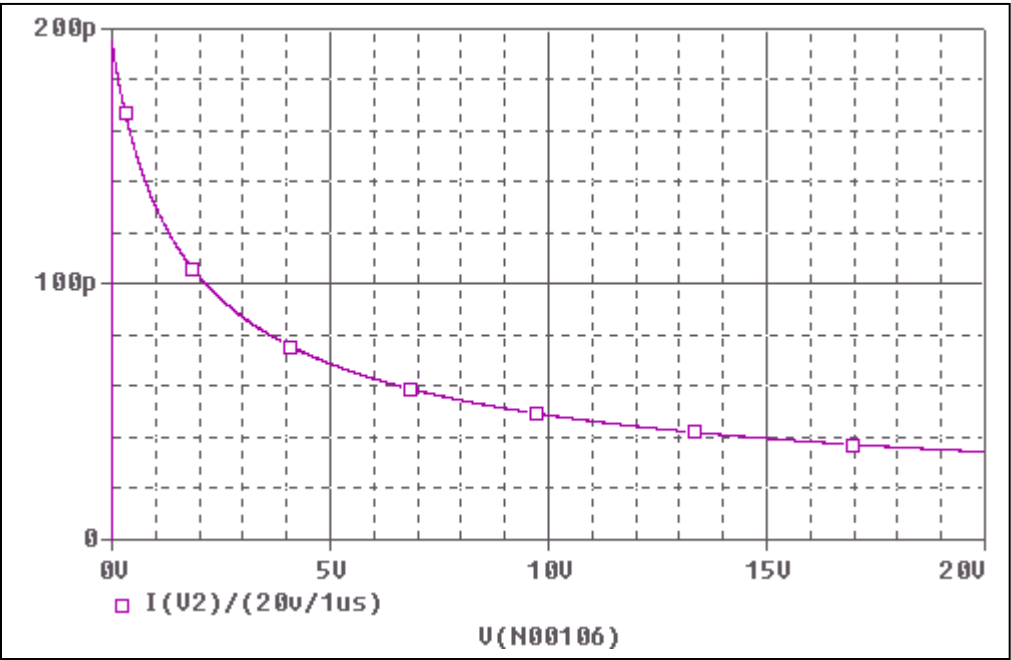


### Simulation Result

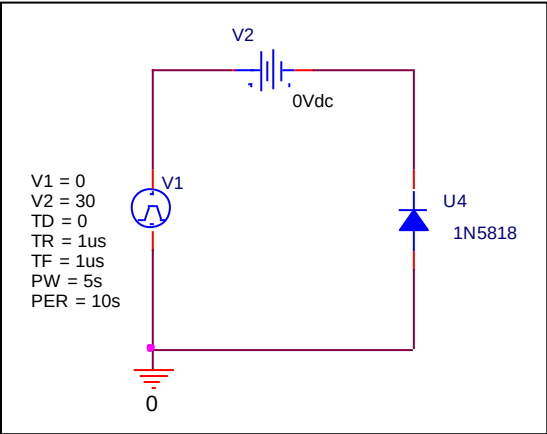
| $I_{fwd}$ (A) | $V_{fwd}$ (V)<br>Measurement | $V_{fwd}$ (V)<br>Simulation | %Error |
|---------------|------------------------------|-----------------------------|--------|
| 0.01          | 0.20                         | 0.20                        | -1.01  |
| 0.02          | 0.22                         | 0.22                        | -0.92  |
| 0.05          | 0.25                         | 0.25                        | -0.41  |
| 0.1           | 0.27                         | 0.27                        | 1.11   |
| 0.2           | 0.30                         | 0.30                        | 1.32   |
| 0.5           | 0.35                         | 0.36                        | 1.68   |
| 1             | 0.42                         | 0.41                        | -1.21  |
| 2             | 0.50                         | 0.49                        | -2.25  |
| 5             | 0.65                         | 0.66                        | 0.76   |

# Junction Capacitance Characteristic

## Circuit Simulation Result

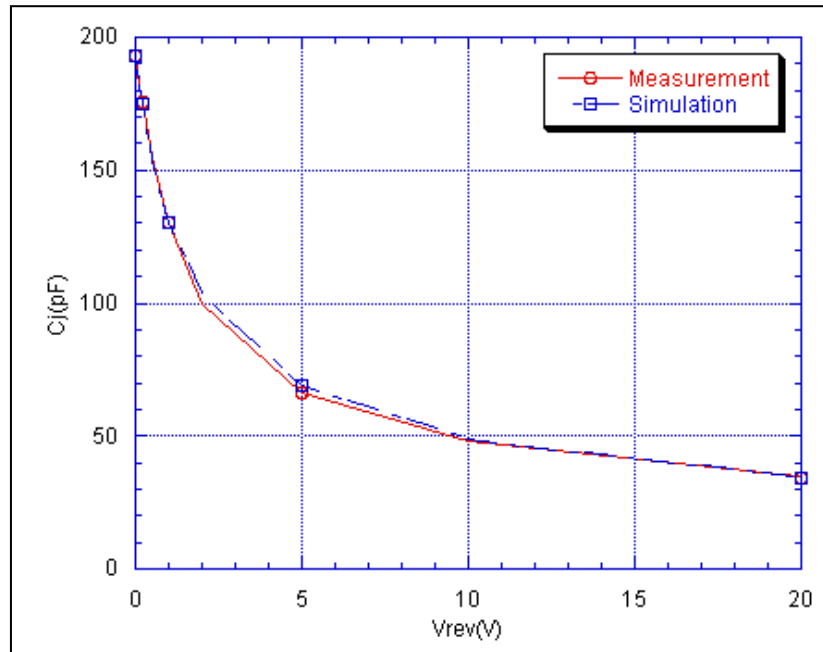


## Evaluation Circuit



## Comparison Graph

### Circuit Simulation Result

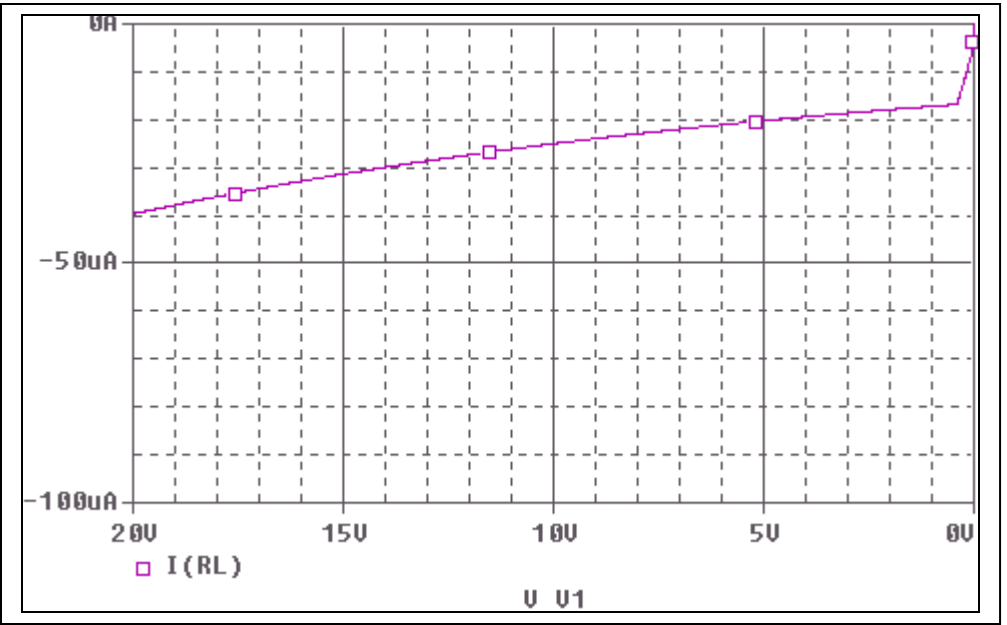


### Simulation Result

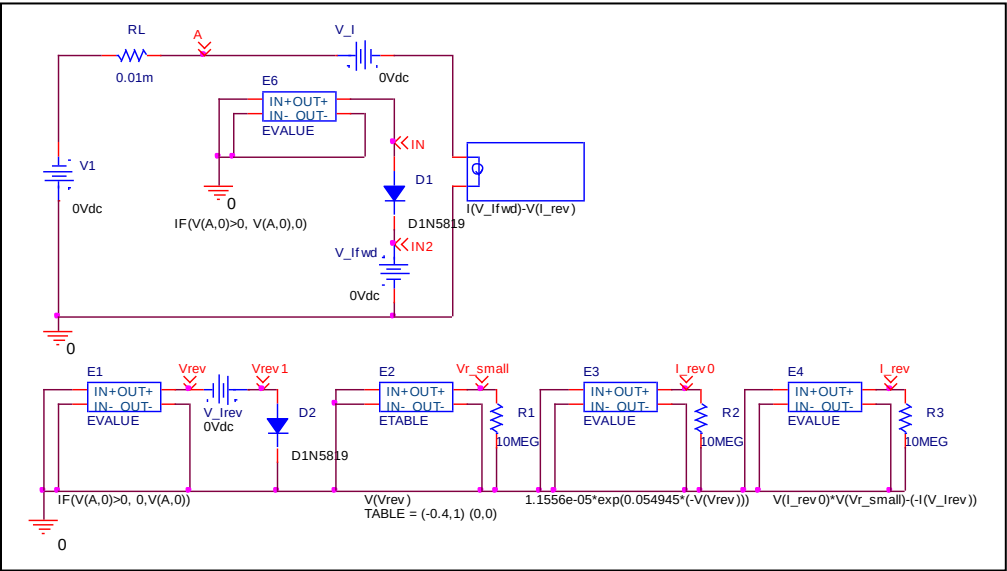
| $V_{rev}$ (V) | $C_j$ (pF)<br>Measurement | $C_j$ (pF)<br>Simulation | %Error |
|---------------|---------------------------|--------------------------|--------|
| 0             | 193.17                    | 193.17                   | 0.00   |
| 0.1           | 181.27                    | 184.16                   | 1.57   |
| 0.2           | 175.69                    | 175.01                   | -0.38  |
| 0.5           | 155.55                    | 153.99                   | -1.01  |
| 1             | 130.64                    | 130.47                   | -0.14  |
| 2             | 99.58                     | 102.95                   | 3.27   |
| 5             | 65.99                     | 68.87                    | 4.19   |
| 10            | 48.00                     | 48.73                    | 1.50   |
| 20            | 34.32                     | 34.45                    | 0.39   |

# Reverse Characteristic

## Circuit Simulation Result

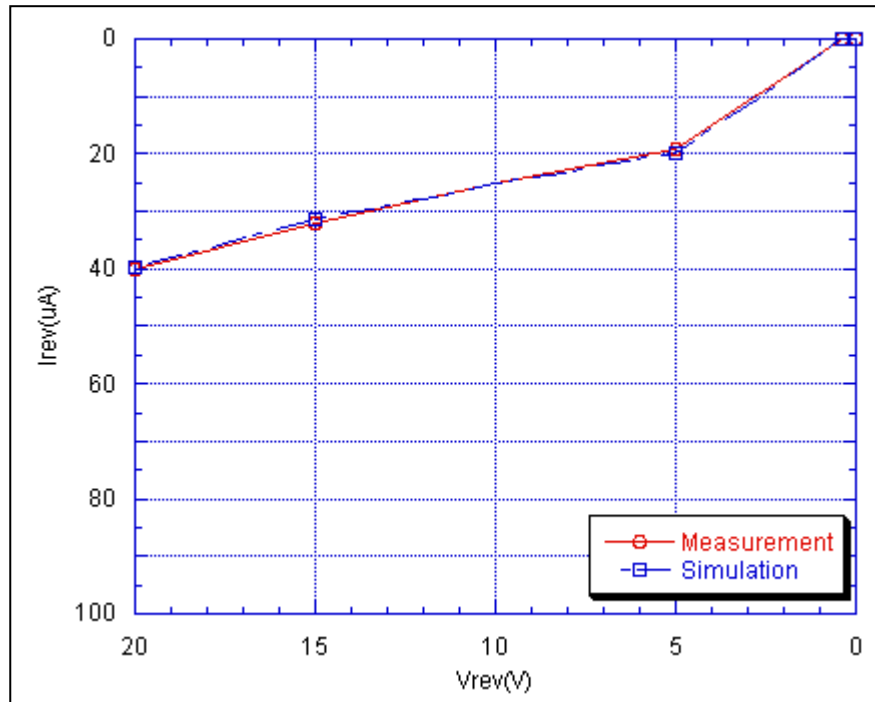


## Evaluation Circuit



## Comparison Graph

### Circuit Simulation Result



### Simulation Result

| $V_{rev}(V)$ | $I_{rev}(\mu A)$<br>Measurement | $I_{rev}(\mu A)$<br>Simulation | %Error |
|--------------|---------------------------------|--------------------------------|--------|
| 5            | 19.20                           | 20.00                          | 4.00   |
| 10           | 25.00                           | 25.01                          | 0.04   |
| 15           | 32.00                           | 31.30                          | -2.24  |
| 20           | 40.00                           | 39.60                          | -1.01  |

Reverse Characteristic

Reference

